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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,154	06/26/2003	Takashi Fukuoka	50395-212	3616

7590 07/17/2006

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EXAMINER	
TARANINA, MARINA Y	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/606,154	FUKUOKA, TAKASHI	
	Examiner	Art Unit	
	Marina Taranina	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 Jun 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *22 Oct 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

(1) Page 5 line 6 of the Specification recites "the optical path 30**m**". It should be corrected to "the optical path 30" as to make it correspond to a figure 1 of the drawings.

(2) Page 8 line 6 of the Specification recites "the **curre**-to-voltage". It should be corrected to "the **current**-to-voltage".

Appropriate correction is required.

Claim Objections

2. Claim 3 is objected to because of the following informalities: line 7 recites "receivers". It should be corrected to "receives".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(1) Claim 3 (3/2/1) line 10 recites the limitation "**the** filter". There is insufficient antecedent basis for this limitation in the claim as it is not clear whether the limitation

refers to "band-pass filter" recited in claim 3 in lines 2, 4, 8 or to "filter" recited in claim 2 (2/1) line 2. For the purpose of examination, the limitation is examined as being referred to "band-pass filter" recited in claim 3 in lines 2, 4, 8.

(2) Claim 4 (4/2/1) line 2 recites the limitation "**the** control signal". There is insufficient antecedent basis for this limitation in the claim as the term "control signal" has not been introduced in claims 1 and 2 which the claim 4 is dependent on. For the purpose of examination, the claim 4 is examined as being dependent on claim 3.

(3) Claim 4 (4/2/1) line 3 recites the limitation "**the** control signal generator". There is insufficient antecedent basis for this limitation in the claim as the term "control signal generator" has not been introduced in claims 1 and 2 which the claim 4 is dependent on. For the purpose of examination, the claim 4 is examined as being dependent on claim 3.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Kurooka (US 2002/0123851 – see IDS dated 26 Jun 2003).

As shown in Fig. 1, Kurooka discloses an optical receiver (1) for receiving a signal light propagated from an optical path (30), the signal light having a frequency response with a concave influenced by an accumulated dispersion of the optical path (30), the optical receiver (1) comprising:

an optical-to-electrical converter for converting the signal light to an electrical current (2 in fig. 1, page 6, para. 0098);

a current-to-voltage converter for receiving the electrical current from the optical-to-electrical converter and for outputting a voltage signal corresponding to the electrical current (3 in fig. 1, page 6, para. 0098);

a filter for filtering the voltage signal from the current-to-voltage converter and for outputting an electrical signal corresponding to the signal light (51 in fig. 2, page 6, para. 0102),

wherein the filter has a frequency response with a convex so that the frequency response of the signal light is compensated (fig. 3, page 6, para. 0100).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Kurooka (US 2002/0123851 – see IDS dated 26 Jun 2003) in view of Ko ("Low power, tunable active inductor ans its applications to monolithic VCO and BPF").

With respect to claim 2 (2/1) Kurooka discloses all the subject matter as recited in Claim 1 above, but fails to teach the optical receiver of Claim 1 wherein the frequency response of the filter has a peak frequency from 2 GHz to 4 GHz.

However, Ko teaches an optical receiver wherein the frequency response of the filter has a peak frequency from 2 GHz to 4 GHz (fig. 11, page 932, 1st col., lines 1-11).

It is desirable to have a filter with a peak frequency range of S band (from 2.0 to 4.0 GHz) because it refers to the wavelength band around 1550 nm in which the conventional optical communication systems operate. Furthermore, it is beneficial to have a filter that is compact, has a great suppression, improved low frequency stop band performance and minimum loss in the pass band. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include Ko teachings of using a filter with a peak frequency from 2 GHz to 4 GHz into an optical receiver of Kurooka as to improve the performance of the receiver.

(2) With respect to Claim 3 (3/2, 3/2/1), Kurooka discloses the optical receiver as recited in Claim 2, further comprising a control signal generator (section 214 of block 21 in fig. 1 or control circuit 9 in fig. 1) having a band-pass filter (51 in fig. 2) with a center frequency and a divider (section 212 of block 21 in fig. 1);

wherein the band-pass filter (51 in fig. 2) receives the voltage signal from the current-to-voltage converter (3 in fig. 1) and outputs a filtered signal with a magnitude of the voltage signal at the center frequency (output of 51 in fig. 2);
the divider (section 212 of block 21 in fig. 1) receives the voltage signal from the current-to-voltage converter (3 in fig. 1) and the filtered signal from the band-pass filter (51 in fig. 2), and outputs a control signal (page 9, para. 0118) that is a ratio of the filtered signal to the voltage signal (page 7 para 0113, page 8 para 0118)
wherein the peak frequency of the filter (51 in fig. 2) is varied by the control signal from the control signal generator (section 214 of block 21 in fig. 1 or control circuit 9 in fig. 1, page 6, para. 0100).

(3) With respect to claim 4 (4/3/2/1), Kurooka discloses all the subject matter described above, but fails to teach the optical receiver as recited in Claim 3 wherein the filter includes an inductor.

However, Ko teaches the optical receiver wherein the filter includes at least an inductor (LPTAI block in fig. 5) with an inductance that is changed by the control signal (Vc in fig. 11) from the control signal generator (page 932, 1st col., lines 1-11).

It is beneficial when a filter of a receiver in an optical communication system allows fine tuning adjustment as it improves output parameters of the receiver. Furthermore, low power consumption that is achieved by using the inductor for BPF filter as described in Ko's teachings is important in telecommunications. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to include Ko's teachings of using an inductor into the filter taught by Kurooka in order to allow fine tuning adjustment and decrease power consumption, which in turn improves output parameters of the receiver.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,907,202 discloses Burst signal detection circuit;

US 2003/0222737 A1 discloses Band pass filter;

US 5,999, 289 discloses Detection of, and compensation for, waveform change due to chromatic dispersion;

US 2004/0013435 A1 discloses Apparatus and Method for optimizing optical and electrical filtering of optical signals

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marina Taranina whose telephone number is 571 270 1085. The examiner can normally be reached on Mon-Fri (alternative Fri off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571 272 2600. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MT

SHUWANG LIU
PRIMARY EXAMINER